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(54) **THREE-DIMENSIONAL THIN-FILM SEMICONDUCTOR SUBSTRATE WITH THROUGH-HOLES AND METHODS OF MANUFACTURING**

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See application file for complete search history.

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(57)

ABSTRACT

A three-dimensional thin-film semiconductor substrate with selective through-holes is provided. The substrate having an inverted pyramidal structure comprising selectively formed through-holes positioned between the front and back lateral surface planes of the semiconductor substrate to form a partially transparent three-dimensional thin-film semiconductor substrate.

5 Claims, 33 Drawing Sheets

